Analytical Laboratory

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McGuire Nuclear Complex - MG03A2
Phone: 980-875-5245 Fax: 980-875-4349

Order Summary Report

Order Number:	**J12090176**
Project Name:	Somerville Waste Water
Customer Name(s):	BillK-RonL--RobnJ-DonS
Customer Address:	253 Plant Allen Road
	Belmont, NC 28012
Lab Contact:	Jason C Perkins Phone: 980-875-5348

Report Authorized By: (Signature) Digitally signed by jay perkins DN: cn=jay perkins, o=Analytical Lab, ou, email=jay.perkins@duke-energy.com, c=US Date: 2012.10.05 14:24:36 -04'00'

Date: 10/5/2012

Program Comments:

Please contact the Program Manager (Jason C Perkins) with any questions regarding this report.

Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with a Qualifier indicate a deviation from the method quality system or quality control requirement. The qualifier description is found at the end of the Certificate of Analysis (sample results) under the qualifiers heading. All results are reported on a dry weight basis unless otherwise noted. Subcontracted data included on the Duke Certificate of Analysis is to be used as information only. Certified vendor results can be found in the subcontracted lab final report. Duke Energy Analytical Laboratory subcontracts analyses to other vendor laboratories that have been qualified by Duke Energy to perform these analyses except where noted.

Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)

Certification:

The Analytical Laboratory holds the following State Certifications : North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2012019722	ALLEN	11-Sep-12 3:30 AM	Chris Greene	FGD Purge Eff
2012019723	ALLEN	11-Sep-12 8:19 AM	BILL HASKINS	EQ Tank Eff
2012019724	ALLEN	11-Sep-12 8:15 AM	BILL HASKINS	BioReactor 1 Inf
2012019725	ALLEN	11-Sep-12 8:40 AM	BILL HASKINS	BioReactor 1 Inf BLANK
2012019726	ALLEN	11-Sep-12 8:27 AM	BILL HASKINS	BioReactor 2 Inf
2012019727	ALLEN	11-Sep-12 8:48 AM	BILL HASKINS	BioReactor 2 Inf BLANK
2012019728	ALLEN	11-Sep-12 8:23 AM	BILL HASKINS	BioReactor 2 Eff
2012019729	ALLEN	11-Sep-12 8:44 AM	BILL HASKINS	BioReactor 2 Eff BLANK
2012019730	ALLEN	11-Sep-12 10:40 AM	BILL HASKINS	Filter Blk

9 Total Samples

Technical Validation Review

Checklist:

COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures).	☑ Yes	☐ No
All Results are less than the laboratory reporting limits.	☐ Yes	☑ No
All laboratory QA/QC requirements are acceptable.	☑ Yes	☐ No

Report Sections Included:

- ☑ Job Summary Report
- ☑ Sample Identification
- ☑ Technical Validation of Data Package
- ☑ Analytical Laboratory Certificate of Analysis
- ☐ Analytical Laboratory QC Report
- ☑ Sub-contracted Laboratory Results
- ☐ Customer Specific Data Sheets, Reports, & Documentation
- ☐ Customer Database Entries
- ☑ Chain of Custody
- ☑ Electronic Data Deliverable (EDD) Sent Separately

Reviewed By: DataBase Administrator Date: 10/5/2012

Certificate of Laboratory Analysis

Order # J12090176

Site: FGD Purge Eff
Collection Date: 11-Sep-12 3:30 AM

Sample #: 2012019722
Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
ALKALINITY - (Analysis Performed by Prism Labs)								
Vendor Parameter	**Complete**					Vendor Method		V_PRISM
INORGANIC IONS BY IC								
Bromide	**1200**	mg/L		50	500	EPA 300.0	9/17/2012 5:09:00 PM	JAHERMA
Chloride	**2500**	mg/L		50	500	EPA 300.0	9/17/2012 5:09:00 PM	JAHERMA
Sulfate	**1300**	mg/L		50	500	EPA 300.0	9/17/2012 5:09:00 PM	JAHERMA
MERCURY (COLD VAPOR) IN WATER								
Mercury (Hg)	**25.8**	ug/L		2.5	50	EPA 245.1	9/20/2012 1:37:34 PM	AGIBBS
DISSOLVED METALS BY ICP								
Manganese (Mn)	**1.73**	mg/L		0.05	10	EPA 200.7	9/12/2012 2:09:00 PM	MHH7131
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**78.9**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:38:00 PM	DJSULL1
Calcium (Ca)	**4050**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:38:00 PM	DJSULL1
Iron (Fe)	**123**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:38:00 PM	DJSULL1
Lithium (Li)	**0.220**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:38:00 PM	DJSULL1
Magnesium (Mg)	**586**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:38:00 PM	DJSULL1
Manganese (Mn)	**4.70**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:38:00 PM	DJSULL1
Potassium (K)	**46.9**	mg/L		1	10	EPA 200.7	9/26/2012 12:38:00 PM	DJSULL1
Sodium (Na)	**30.2**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:38:00 PM	DJSULL1
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**4740**	ug/L		10	10	EPA 200.8	9/18/2012 4:00:00 PM	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**278**	ug/L		10	10	EPA 200.8	9/25/2012 12:19:00 PM	KRICHAR
Cadmium (Cd)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:19:00 PM	KRICHAR
Chromium (Cr)	**216**	ug/L		10	10	EPA 200.8	9/25/2012 12:19:00 PM	KRICHAR
Copper (Cu)	**202**	ug/L		10	10	EPA 200.8	9/25/2012 12:19:00 PM	KRICHAR
Nickel (Ni)	**278**	ug/L		10	10	EPA 200.8	9/25/2012 12:19:00 PM	KRICHAR
Selenium (Se)	**7060**	ug/L		20	20	EPA 200.8	9/25/2012 12:19:00 PM	KRICHAR
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:19:00 PM	KRICHAR
Zinc (Zn)	**354**	ug/L		10	10	EPA 200.8	9/25/2012 12:19:00 PM	KRICHAR
SELENIUM SPECIATION - (Analysis Performed by Applied Speciation and Consulting, LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_AS&C
TOTAL DISSOLVED SOLIDS								
TDS	**14000**	mg/L		200	1	SM2540C	9/12/2012 3:51:00 PM	SWILLI3
TOTAL SUSPENDED SOLIDS								
TSS	**2800**	mg/L		250	1	SM2540D	9/13/2012 1:55:00 PM	SWILLI3

Certificate of Laboratory Analysis

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Order # J12090176

Site: FGD Purge Eff — **Sample #: 2012019722**
Collection Date: 11-Sep-12 3:30 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst

Site: EQ Tank Eff — **Sample #: 2012019723**
Collection Date: 11-Sep-12 8:19 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY (COLD VAPOR) IN WATER								
Mercury (Hg)	**19.9**	ug/L		2.5	50	EPA 245.1	9/20/2012 1:39:58 PI	AGIBBS
DISSOLVED METALS BY ICP								
Manganese (Mn)	**0.370**	mg/L		0.05	10	EPA 200.7	9/12/2012 2:12:00 PI	MHH7131
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**88.4**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:42:00 P	DJSULL1
Calcium (Ca)	**2050**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:42:00 P	DJSULL1
Iron (Fe)	**69.1**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:42:00 P	DJSULL1
Lithium (Li)	**0.153**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:42:00 P	DJSULL1
Magnesium (Mg)	**544**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:42:00 P	DJSULL1
Manganese (Mn)	**2.81**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:42:00 P	DJSULL1
Potassium (K)	**31.3**	mg/L		1	10	EPA 200.7	9/26/2012 12:42:00 P	DJSULL1
Sodium (Na)	**34.8**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:42:00 P	DJSULL1
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**3780**	ug/L		10	10	EPA 200.8	9/18/2012 3:44:00 PI	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**140**	ug/L		10	10	EPA 200.8	9/25/2012 12:22:00 P	KRICHAR
Cadmium (Cd)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:22:00 P	KRICHAR
Chromium (Cr)	**133**	ug/L		10	10	EPA 200.8	9/25/2012 12:22:00 P	KRICHAR
Copper (Cu)	**127**	ug/L		10	10	EPA 200.8	9/25/2012 12:22:00 P	KRICHAR
Nickel (Ni)	**198**	ug/L		10	10	EPA 200.8	9/25/2012 12:22:00 P	KRICHAR
Selenium (Se)	**4720**	ug/L		10	10	EPA 200.8	9/25/2012 12:22:00 P	KRICHAR
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:22:00 P	KRICHAR
Zinc (Zn)	**239**	ug/L		10	10	EPA 200.8	9/25/2012 12:22:00 P	KRICHAR

Site: BioReactor 1 Inf — **Sample #: 2012019724**
Collection Date: 11-Sep-12 8:15 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
ALKALINITY - (Analysis Performed by Prism Labs)								
Vendor Parameter	**Complete**					Vendor Method		V_PRISM

Certificate of Laboratory Analysis

Order # J12090176

Site: BioReactor 1 Inf **Sample #: 2012019724**

Collection Date: 11-Sep-12 8:15 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
MERCURY 1631 - DISSOLVED - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
DISSOLVED METALS BY ICP								
Manganese (Mn)	**< 0.05**	mg/L		0.05	10	EPA 200.7	9/12/2012 2:15:00 PI	MHH7131
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**89.4**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:46:00 P	DJSULL1
Calcium (Ca)	**1640**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:46:00 P	DJSULL1
Iron (Fe)	**< 0.1**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:46:00 P	DJSULL1
Lithium (Li)	**0.066**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:46:00 P	DJSULL1
Magnesium (Mg)	**348**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:46:00 P	DJSULL1
Manganese (Mn)	**< 0.05**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:46:00 P	DJSULL1
Potassium (K)	**16.6**	mg/L		1	10	EPA 200.7	9/26/2012 12:46:00 P	DJSULL1
Sodium (Na)	**64.6**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:46:00 P	DJSULL1
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**2470**	ug/L		10	10	EPA 200.8	9/18/2012 3:47:00 PI	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:25:00 P	KRICHAR
Cadmium (Cd)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:25:00 P	KRICHAR
Chromium (Cr)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:25:00 P	KRICHAR
Copper (Cu)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:25:00 P	KRICHAR
Nickel (Ni)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:25:00 P	KRICHAR
Selenium (Se)	**2730**	ug/L		10	10	EPA 200.8	9/25/2012 12:25:00 P	KRICHAR
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:25:00 P	KRICHAR
Zinc (Zn)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:25:00 P	KRICHAR
SELENIUM SPECIATION - (Analysis Performed by Applied Speciation and Consulting, LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_AS&C

Site: BioReactor 1 Inf BLANK **Sample #: 2012019725**

Collection Date: 11-Sep-12 8:40 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Certificate of Laboratory Analysis

This report shall not be reproduced, except in full.

Order # J12090176

Site: BioReactor 1 Inf BLANK — **Sample #: 2012019725**
Collection Date: 11-Sep-12 8:40 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - DISSOLVED - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Site: BioReactor 2 Inf — **Sample #: 2012019726**
Collection Date: 11-Sep-12 8:27 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
ALKALINITY - (Analysis Performed by Prism Labs)								
Vendor Parameter	**Complete**					Vendor Method		V_PRISM
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
MERCURY 1631 - DISSOLVED - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
DISSOLVED METALS BY ICP								
Manganese (Mn)	**< 0.05**	mg/L		0.05	10	EPA 200.7	9/12/2012 2:18:00 PI	MHH7131
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**94.7**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:50:00 P	DJSULL1
Calcium (Ca)	**1640**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:50:00 P	DJSULL1
Iron (Fe)	**0.247**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:50:00 P	DJSULL1
Lithium (Li)	**0.069**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:50:00 P	DJSULL1
Magnesium (Mg)	**355**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:50:00 P	DJSULL1
Manganese (Mn)	**< 0.05**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:50:00 P	DJSULL1
Potassium (K)	**28.1**	mg/L		1	10	EPA 200.7	9/26/2012 12:50:00 P	DJSULL1
Sodium (Na)	**64.9**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:50:00 P	DJSULL1
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**164**	ug/L		10	10	EPA 200.8	9/18/2012 3:50:00 PI	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:28:00 P	KRICHAR
Cadmium (Cd)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:28:00 P	KRICHAR
Chromium (Cr)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:28:00 P	KRICHAR
Copper (Cu)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:28:00 P	KRICHAR
Nickel (Ni)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:28:00 P	KRICHAR
Selenium (Se)	**185**	ug/L		10	10	EPA 200.8	9/25/2012 12:28:00 P	KRICHAR
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:28:00 P	KRICHAR
Zinc (Zn)	**< 10**	ug/L		10	10	EPA 200.8	9/25/2012 12:28:00 P	KRICHAR

Certificate of Laboratory Analysis

Order # J12090176

Site: BioReactor 2 Inf — **Sample #: 2012019726**
Collection Date: 11-Sep-12 8:27 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
SELENIUM SPECIATION - (Analysis Performed by Applied Speciation and Consulting, LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_AS&C

Site: BioReactor 2 Inf BLANK — **Sample #: 2012019727**
Collection Date: 11-Sep-12 8:48 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
MERCURY 1631 - DISSOLVED - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Site: BioReactor 2 Eff — **Sample #: 2012019728**
Collection Date: 11-Sep-12 8:23 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
ALKALINITY - (Analysis Performed by Prism Labs)								
Vendor Parameter	**Complete**					Vendor Method		V_PRISM
INORGANIC IONS BY IC								
Bromide	**520**	mg/L		50	500	EPA 300.0	9/17/2012 5:27:00 P	JAHERMA
Chloride	**2100**	mg/L		50	500	EPA 300.0	9/17/2012 5:27:00 P	JAHERMA
Sulfate	**1500**	mg/L		50	500	EPA 300.0	9/17/2012 5:27:00 P	JAHERMA
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
MERCURY 1631 - DISSOLVED - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
DISSOLVED METALS BY ICP								
Manganese (Mn)	**< 0.05**	mg/L		0.05	10	EPA 200.7	9/12/2012 2:21:00 P	MHH7131

Certificate of Laboratory Analysis

Order # J12090176

Site: BioReactor 2 Eff **Sample #: 2012019728**

Collection Date: 11-Sep-12 8:23 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**113**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:54:00 P	DJSULL1
Calcium (Ca)	**1490**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:54:00 P	DJSULL1
Iron (Fe)	**1.22**	mg/L		0.1	10	EPA 200.7	9/26/2012 12:54:00 P	DJSULL1
Lithium (Li)	**0.063**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:54:00 P	DJSULL1
Magnesium (Mg)	**391**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:54:00 P	DJSULL1
Manganese (Mn)	**< 0.05**	mg/L		0.05	10	EPA 200.7	9/26/2012 12:54:00 P	DJSULL1
Potassium (K)	**30.3**	mg/L		1	10	EPA 200.7	9/26/2012 12:54:00 P	DJSULL1
Sodium (Na)	**65.3**	mg/L		0.5	10	EPA 200.7	9/26/2012 12:54:00 P	DJSULL1
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**15.2**	ug/L		5	5	EPA 200.8	9/18/2012 3:53:00 PI	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 5**	ug/L		5	5	EPA 200.8	9/25/2012 12:31:00 P	KRICHAR
Cadmium (Cd)	**< 5**	ug/L		5	5	EPA 200.8	9/25/2012 12:31:00 P	KRICHAR
Chromium (Cr)	**< 5**	ug/L		5	5	EPA 200.8	9/25/2012 12:31:00 P	KRICHAR
Copper (Cu)	**< 5**	ug/L		5	5	EPA 200.8	9/25/2012 12:31:00 P	KRICHAR
Nickel (Ni)	**< 5**	ug/L		5	5	EPA 200.8	9/25/2012 12:31:00 P	KRICHAR
Selenium (Se)	**16.0**	ug/L		5	5	EPA 200.8	9/25/2012 12:31:00 P	KRICHAR
Silver (Ag)	**< 5**	ug/L		5	5	EPA 200.8	9/25/2012 12:31:00 P	KRICHAR
Zinc (Zn)	**< 5**	ug/L		5	5	EPA 200.8	9/25/2012 12:31:00 P	KRICHAR
SELENIUM SPECIATION - (Analysis Performed by Applied Speciation and Consulting, LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_AS&C

Site: BioReactor 2 Eff BLANK **Sample #: 2012019729**

Collection Date: 11-Sep-12 8:44 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
MERCURY 1631 - DISSOLVED - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Certificate of Laboratory Analysis

Order # J12090176

Site: Filter Blk
Collection Date: 11-Sep-12 10:40 AM

Sample #: **2012019730**
Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
DISSOLVED METALS BY ICP								
Manganese (Mn)	**< 0.005**	mg/L		0.005	1	EPA 200.7	9/12/2012 2:24:00 PM	MHH7131
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**< 1**	ug/L		1	1	EPA 200.8	9/18/2012 2:26:00 PM	KRICHAR

APPLIED SPECIATION
AND CONSULTING, LLC

18804 Northcreek Parkway Bothell, WA, 98011
Tel: (425) 483-3300 Fax: (425) 483-9818
www.appliedspeciation.com

September 25, 2012

Jay Perkins
Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd.
Huntersville, NC 28078
(704) 875-5245

Project: Allen Shay/MillerCreek (LIMS#J12090176)

Dear Mr. Perkins,

Attached is the report associated with four (4) aqueous samples submitted for selenium speciation analysis on September 13, 2012. The samples were received in a sealed cooler at -0.5°C on September 14, 2012. Selenium speciation analysis was performed via ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). Any issues associated with the analysis are addressed in the following report.

If you have any questions, please feel free to contact me at your convenience.

Sincerely,

Russell Gerads
Vice President
Applied Speciation and Consulting, LLC

Applied Speciation and Consulting, LLC

Report prepared for:

Jay Perkins
Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd.
Huntersville, NC 28078

Project: Allen Shay/MillerCreek (LIMS#J12090176)

September 25, 2012

1. Sample Reception

Four (4) aqueous samples in 125mL HDPE bottles (provided by Applied Speciation and Consulting) were submitted for selenium speciation analysis on September 13, 2012. The samples were received on September 14, 2012 in a sealed container at -0.5°C.

The samples were received in a laminar flow clean hood, void of trace metals contamination and ultra-violet radiation, and were designated discrete sample identifiers. An aliquot of each sample was filtered (0.45µm) and each filtrate was stored in a secure, monitored cryofreezer (maintained at a temperature of -80^{o}C) until selenium speciation analysis could be performed via ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS).

2. Sample Preparation

All sample preparation is performed in laminar flow clean hoods known to be free from trace metals contamination. All applied water for dilutions and sample preservatives are monitored for contamination to account for any biases associated with the sample results.

Selenium Speciation Analysis by IC-ICP-CRC-MS Prior to analysis, an aliquot of each sample was filtered with a syringe filter (0.45µm) and injected directly into a sealed autosampler vial. No further sample preparation was performed as any chemical alteration of a sample may shift the equilibrium of the system, resulting in changes in speciation ratios.

3. Sample Analysis

All sample analysis is preceded by a minimum of a five-point calibration curve spanning the entire concentration range of interest. Calibration curves are performed at the beginning of each analytical day. All calibration curves, associated with each species of interest, are

standardized by linear regression resulting in a response factor. All sample results are **instrument blank corrected** to account for any operational biases associated with the analytical platform.

Prior to sample analysis, all calibration curves are verified using second source standards which are identified as initial calibration verification standards (ICV).

Ongoing instrument performance is identified by the analysis of continuing calibration verification standards (CCV) and continuing calibration blanks (CCB) at a minimal interval of every ten analytical runs.

Selenium Speciation Analysis by IC-ICP-CRC-MS Each sample for selenium speciation analysis was analyzed by ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS) on September 21, 2012. An aliquot of each sample is injected onto an anion exchange column and mobilized by a basic (pH > 7) gradient. The eluting selenium species are then introduced into a radio frequency (RF) plasma where energy-transfer processes cause desolvation, atomization, and ionization. The ions are extracted from the plasma through a differentially-pumped vacuum interface and travel through a pressurized chamber (CRC) containing a reaction gas which preferentially reacts with interfering ions of the same target mass to charge ratios (m/z). A solid-state detector detects ions transmitted through the mass analyzer and the resulting current is processed by a data handling system.

Retention times for each eluting species are compared to known standards for species identification.

4. Analytical Issues

The overall analyses went well and no significant analytical issues were encountered. All quality control parameters associated with the samples were within acceptance limits.

The estimated method detection limits (eMDLs) for selenite, selenate, and selenocyanate are generated from replicate analyses of the lowest standard in the calibration curve. Not all selenium species are present in preparation blanks; therefore, eMDL calculations based on preparation blanks are artificially biased low.

The eMDL for methylseleninic acid and selenomethionine is calculated from the average eMDL of selenite, selenate, and selenocyanate. The calibration does not contain methylseleninic acid or selenomethionine due to impurities in these standards which would bias the results for other selenium species.

If you have any questions or concerns regarding this report, please feel free to contact me.

Sincerely,

Russell Gerads
Vice President
Applied Speciation and Consulting, LLC

Selenium Speciation Results for Duke Energy
Project Name: Allen Shay/MillerCreek
Contact: Jay Perkins
LIMS #J12090176

Date: September 25, 2012
Report Generated by: Russell Gerads
Applied Speciation and Consulting, LLC

Sample Results

Sample ID	Se(IV)	Se(VI)	SeCN	MeSe(IV)	SeMe	Unknown Se Species (n)
FGD Purge Eff	547	3840	ND (<1.2)	ND (<0.92)	ND (<0.92)	0.0 (0)
BioReactor 1 Inf	8.09	2290	ND (<0.31)	1.30	0.24	0.0 (0)
BioReactor 2 Inf	34.5	75.6	0.48	1.38	0.47	0.0 (0)
BioReactor 2 Eff	0.99	ND (<0.12)	ND (<0.31)	ND (<0.23)	ND (<0.23)	0.0 (0)

All results reflect the applied dilution and are reported in µg/L
ND = Not detected at the applied dilution
SeCN = Selenocyanate
MeSe(IV) = Methylseleninic acid
SeMe = Selenomethionine
Unknown Se Species = Total concentration of all unknown Se species observed by IC-ICP-MS
n = number of unknown Se species observed

Selenium Speciation Results for Duke Energy
Project Name: Allen Shay/MillerCreek
Contact: Jay Perkins
LIMS #J12090176

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Quality Control Summary - Preparation Blank Summary

Analyte (µg/L)	PBW1	PBW2	PBW3	PBW4	Mean	StdDev	eMDL*	eMDL 250x	eMDL 1000x
Se(IV)	0.000	0.000	0.000	0.000	0.000	0.000	0.0010	0.26	1.0
Se(VI)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.12	0.47
SeCN	0.000	0.000	0.000	0.000	0.000	0.000	0.0012	0.31	1.2
MeSe(IV)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.23	0.92
SeMe	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.23	0.92

eMDL = Estimated Method Detection Limit
*Please see narrative regarding eMDL calculations

Quality Control Summary - Certified Reference Materials

Analyte (µg/L)	CRM	True Value	Result	Recovery
Se(IV)	LCS	9.57	9.30	97.2
Se(VI)	LCS	9.48	8.94	94.3
SeCN	LCS	8.92	8.60	96.4
MeSe(IV)	LCS	6.47	6.07	93.9
SeMe	LCS	9.32	8.67	93.1

Selenium Speciation Results for Duke Energy
Project Name: Allen Shay/MillerCreek
Contact: Jay Perkins
LIMS #J12090176

Date: September 25, 2012
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Quality Control Summary - Matrix Duplicates

Analyte (µg/L)	Sample ID	Rep 1	Rep 2	Mean	RPD
Se(IV)	BioReactor 1 Inf	8.09	8.45	8.27	4.4
Se(VI)	BioReactor 1 Inf	2290	2310	2300	0.9
SeCN	BioReactor 1 Inf	ND (<0.31)	ND (<0.31)	NC	NC
MeSe(IV)	BioReactor 1 Inf	1.30	1.21	1.26	7.1
SeMe	BioReactor 1 Inf	0.24	ND (<0.23)	NC	NC

ND = Not detected at the applied dilution
NC = Value was not calculated due to one or more concentrations below the eMDL

Quality Control Summary - Matrix Spike/ Matrix Spike Duplicate

Analyte (µg/L)	Sample ID	Spike Conc	MS Result	Recovery	Spike Conc	MSD Result	Recovery	RPD
Se(IV)	BioReactor 1 Inf	1390	1365	97.6	1390	1361	97.3	0.3
Se(VI)	BioReactor 1 Inf	1261	3484	93.9	1261	3504	95.4	0.6
SeCN	BioReactor 1 Inf	1144	1076	94.1	1144	1060	92.7	1.5

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

LIMS # J12090176 | Matrix: OTHER | Samples Originating From: NC ___ SC ___

Logged By: cpk | Date & Time: 9-12-12 0728 | SAMPLE PROGRAM: Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA ___ Waste ___

Vendor: | 2.4 Cooler Temp (C)

Vendor: Prism, ASC, Brooks

MR #

[19]Page 1 of 2
DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Page 4 of 8 ~~5 of 8~~

1)Project Name: Allen Shay/MillerCreek	2)Phone No:
2) Client: Ron Laws, Robbin Jolly, Bill Kennedy, Don Scruggs	4)Fax No:
5)Project: MASFFLX	6)Account:
8)Oper. Unit: AS00	9)Process: BEXHABS
Mail Code:	10)Activity ID:

Customer to complete all appropriate non-shaded areas.

[15]Preserv.: 1=HCl, 2=H_2SO_4, 3=HNO_3, 4=Ice, 5=None

[16]Analysis Required

LAB USE ONLY [11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[17]Comp.	[18]Grab	TDS, TSS	Hg 1631 total and filtered V_Brand	Metals + Hg 245.1**	Mn (ICP), Se (IMS) filtered	Se, Speciation, V_ASC	Carbonate alkalinity, bicarbonate alkalinity, alkalinity, total (4.5), pH - V_Prism	Chloride, Sulfate, Bromide, - Dionex	Nitrate-nitrite, C_NO3/NO2
						4			4	3	3	4	4	4	2,4
20120147		FGD Purge Eff	9-11-12	3:30AM	Chris Greene	90		1		1**	1	1	1	1	
23		* EQ Tank	9-11	0819	Bill Haskins	5				1**	1				
24		BioReactor 1 Inf	9-11	0825	Bill Haskins	8			1	1	1	1	1		
25		BioReactor 1 Inf Hg Blk	9-11	0840	Bill Haskins	2			1						
26		BioReactor 2 Inf	9-11	0827	Bill Haskins	8			1	1	1	1	1		
27		BioReactor 2 Inf Hg Blk	9-11	0848	Bill Haskins	2			1						
28		BioReactor 2 Eff	9-11	0823	Bill Haskins	9			1	1	1	1	1	1	
29		BioReactor 2 Eff Hg Blk	9-11	0844	Bill Haskins	2			1						
30		Filter Blank	9-11	1040	Bill Haskins	2									
								1	6	5	6	4	4	2	

1) Relinquished By	Date/Time	2) Accepted By: cpk	Date/Time 9-12-12
3) Relinquished By	Date/Time	4) Accepted By:	Date/Time 9/14/12 1000
5)Relinquished By	Date/Time	6)Accepted By: -0.5C	Date/Time
7)Relinquished By: cpk	Date/Time 9-13-12	8)Accepted By:	Date/Time
9)Seal/Locked By	Date/Time 9-13-12	10) Seal/Lock Opened By	Date/Time
11)Seal/Locked By	Date/Time	12)Seal/Lock Opened By	Date/Time

Comments: * Metals=

[22]Requested Turnaround
21 Days ____X____
*7 Days ____
· 48 Hr ____
*Other 9-20-12
Add. Cost Will Apply

October 1, 2012

Duke Energy
ATTN: Jay Perkins
Scientific Support-Laboratory
13339 Hagers Ferry Road
Huntersville NC 28078
jcperkins@duke-energy.com
labcustomer@duke-energy.com

RE: Project DUK-HV1201 Client Project: J12090176

Dear Mr. Perkins,

On September 14, 2012, Brooks Rand Labs (BRL) received three (3) wastewater samples and three (3) corresponding field blanks. An aliquot was removed from each sample bottle and filtered into a separate container designed for dissolved mercury (Hg) analysis. The sample volume from the original container was logged-in for total Hg analysis. All samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

Data used for regulatory purposes has a 24 hour filtration holding time requirement. Non-regulatory purposed data has a 48 hour filtration holding time. The samples were received outside of the non-regulatory requirement holding time and were qualified **H**.

The results were blank-corrected as described in the calculations section of the relevant SOP and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

In sequences 1200724 and 1200736, the results of continuing calibration blank –CCB1 were greater than the low calibration standard; however, no client samples were bracketed by the analysis of –CCB1 and all other CCBs results were low. The somewhat elevated –CCB1s were likely attributed to carryover from the previous analysis of the independent calibration verification standard -ICV1.

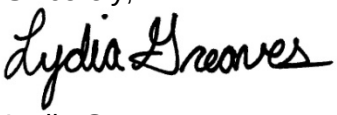
In sequence 1200740, CCBB was greater than the low calibration standard. No samples from this work order were bracketed by the elevated CCB. All samples that were bracketed by this CCB were greater than 10x the concentration and no further action was required.

The continuing calibration verification standard –CCV4, analyzed in sequence 1200724, recovered at 123%- above the acceptance criteria range. No client samples from this work order were bracketed. Aside from concentration qualifiers, all data was reported without further qualification and all associated quality control sample results met the acceptance criteria.

BRL, an accredited laboratory, certifies the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, see the *Report Information*

page of the report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,



Lydia Greaves
Project Manager
lydia@brooksrand.com

Report Information

Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations /certifications, please visit our website at <http://www.brooksrand.com/default.asp?contentID=586>. Results reported relate only to the samples listed in the report.

Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

Common Abbreviations

BLK	method blank	**MS**	matrix spike
BRL	Brooks Rand Labs	**MSD**	matrix spike duplicate
BS	laboratory fortified blank	**ND**	non-detect
CAL	calibration standard	**NR**	non-reportable
CCV	continuing calibration verification	**PS**	post preparation spike
COC	chain of custody record	**REC**	percent recovery
CRM	certified reference material	**RPD**	relative percent difference
D	dissolved fraction	**RSD**	relative standard deviation
DUP	duplicate	**SCV**	secondary calibration verification
ICV	initial calibration verification	**SOP**	standard operating procedure
MDL	method detection limit	**SRM**	standard reference material
MRL	method reporting limit	**T**	total recoverable fraction

Definition of Data Qualifiers

(Effective 9/23/09)

B Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Result is estimated.
J Estimated value. A full explanation is presented in the narrative.
J-M Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
J-N Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
M Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
N Spike recovery was not within acceptance criteria. Result is estimated.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
BioReactor 1 Inf	1237037-01	Influent	Sample	09/11/2012	09/14/2012
BioReactor 1 Inf	1237037-02	Influent	Sample	09/11/2012	09/14/2012
BioReactor 1 Inf Hg Blk	1237037-03	DIW	Field Blank	09/11/2012	09/14/2012
BioReactor 1 Inf Hg Blk	1237037-04	DIW	Field Blank	09/11/2012	09/14/2012
BioReactor 2 Inf	1237037-05	Influent	Sample	09/11/2012	09/14/2012
BioReactor 2 Inf	1237037-06	Influent	Sample	09/11/2012	09/14/2012
BioReactor 2 Inf Hg Blk	1237037-07	DIW	Field Blank	09/11/2012	09/14/2012
BioReactor 2 Inf Hg Blk	1237037-08	DIW	Field Blank	09/11/2012	09/14/2012
BioReactor 2 Eff	1237037-09	Effluent	Sample	09/11/2012	09/14/2012
BioReactor 2 Eff	1237037-10	Effluent	Sample	09/11/2012	09/14/2012
BioReactor 2 Eff Hg Blk	1237037-11	DIW	Field Blank	09/11/2012	09/14/2012
BioReactor 2 Eff Hg Blk	1237037-12	DIW	Field Blank	09/11/2012	09/14/2012

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
Hg	Water	EPA 1631	09/18/2012	09/19/2012	B121708	1200724
Hg	Water	EPA 1631	09/18/2012	09/24/2012	B121708	1200736
Hg	Water	EPA 1631	09/20/2012	09/25/2012	B121743	1200740

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
BioReactor 1 Inf										
1237037-01	Hg	Influent	T	1400		12.8	34.0	ng/L	B121708	1200736
1237037-02	Hg	Influent	D	41.3	H	0.76	2.02	ng/L	B121708	1200736
BioReactor 1 Inf Hg Blk										
1237037-03	Hg	DIW	T	0.15	U	0.15	0.41	ng/L	B121708	1200724
1237037-04	Hg	DIW	D	0.16	H, U	0.16	0.42	ng/L	B121708	1200724
BioReactor 2 Eff										
1237037-09	Hg	Effluent	T	23.7		0.18	0.49	ng/L	B121708	1200736
1237037-10	Hg	Effluent	D	22.9	H	0.15	0.40	ng/L	B121743	1200740
BioReactor 2 Eff Hg Blk										
1237037-11	Hg	DIW	T	0.16	U	0.16	0.41	ng/L	B121743	1200740
1237037-12	Hg	DIW	D	0.15	H, U	0.15	0.41	ng/L	B121743	1200740
BioReactor 2 Inf										
1237037-05	Hg	Influent	T	550		3.83	10.2	ng/L	B121708	1200736
1237037-06	Hg	Influent	D	17.1	H	0.16	0.42	ng/L	B121708	1200736
BioReactor 2 Inf Hg Blk										
1237037-07	Hg	DIW	T	0.16	U	0.16	0.42	ng/L	B121708	1200724
1237037-08	Hg	DIW	D	0.15	H, U	0.15	0.40	ng/L	B121708	1200724

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Accuracy & Precision Summary

Batch: B121708
Lab Matrix: Water
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B121708-SRM1	**Certified Reference Material (1237042, NIST 1641d 1000x dilution)**						
	Hg		62.72	68.70	ng/L	110% 85-115	
B121708-SRM2	**Certified Reference Material (1237042, NIST 1641d 1000x dilution)**						
	Hg		62.72	61.78	ng/L	99% 85-115	
B121708-DUP5	**Duplicate (1237021-02)**						
	Hg	5.66		5.63	ng/L		0.5% 24
B121708-MS5	**Matrix Spike (1237021-02)**						
	Hg	5.66	61.59	64.13	ng/L	95% 71-125	
B121708-MSD5	**Matrix Spike Duplicate (1237021-02)**						
	Hg	5.66	58.52	61.11	ng/L	95% 71-125	5% 24

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Accuracy & Precision Summary

Batch: B121743
Lab Matrix: Water
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B121743-SRM1	**Certified Reference Material (1237042, NIST 1641d 1000x dilution)**						
	Hg		62.72	62.13	ng/L	99% 85-115	
B121743-DUP1	**Duplicate (1237041-03)**						
	Hg	87.20		96.92	ng/L		11% 24
B121743-MS1	**Matrix Spike (1237041-03)**						
	Hg	87.20	1515	1531	ng/L	95% 71-125	
B121743-MSD1	**Matrix Spike Duplicate (1237041-03)**						
	Hg	87.20	1515	1531	ng/L	95% 71-125	0.001% 24

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Method Blanks & Reporting Limits

Batch: B121708
Matrix: Water
Method: EPA 1631
Analyte: Hg

Sample	Result	Units
B121708-BLK1	0.27	ng/L
B121708-BLK2	0.13	ng/L
B121708-BLK3	0.12	ng/L
B121708-BLK4	0.14	ng/L

Average: 0.17 **Standard Deviation:** 0.07 **MDL:** 0.16
Limit: 0.50 **Limit:** 0.10 **MRL:** 0.42

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Method Blanks & Reporting Limits

Batch: B121743
Matrix: Water
Method: EPA 1631
Analyte: Hg

Sample	Result	Units
B121743-BLK1	0.13	ng/L
B121743-BLK2	0.18	ng/L
B121743-BLK3	0.16	ng/L
B121743-BLK4	0.14	ng/L

Average: 0.15 **Standard Deviation:** 0.02 **MDL:** 0.16
Limit: 0.50 **Limit:** 0.11 **MRL:** 0.42

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Instrument Calibration

Sequence: 1200724
Instrument: THG-05
Date: 09/19/2012
Analyte: Hg

Total Mercury and Mercury Speciation by CVAFS
Method: EPA 1631

Lab ID	True Value	Result	Units	REC & Limits	
1200724-IBL1		0.55	pg of Hg		
1200724-IBL2		0.59	pg of Hg		
1200724-IBL3		0.85	pg of Hg		
1200724-IBL4		1.49	pg of Hg		
1200724-CAL1	10.00	8.44	pg of Hg	84%	
1200724-CAL2	25.00	24.04	pg of Hg	96%	
1200724-CAL3	100.0	100.6	pg of Hg	101%	
1200724-CAL4	500.0	518.9	pg of Hg	104%	
1200724-CAL5	2500	2773	pg of Hg	111%	
1200724-CAL6	10000	10920	pg of Hg	109%	
1200724-ICV1	1568	1718	pg of Hg	110%	85-115
1200724-CCB1		14.4	pg of Hg		
1200724-CCV1	500.0	551.6	pg of Hg	110%	77-123
1200724-CCB2		6.70	pg of Hg		
1200724-CCB3		4.20	pg of Hg		
1200724-CCB4		4.65	pg of Hg		
1200724-CCV2	500.0	551.2	pg of Hg	110%	77-123
1200724-CCB5		3.76	pg of Hg		
1200724-CCV3	500.0	589.9	pg of Hg	118%	77-123
1200724-CCB6		9.75	pg of Hg		
1200724-CCV4	500.0	615.6	pg of Hg	*123%*	77-123
1200724-CCB7		6.91	pg of Hg		
1200724-CCV5	500.0	609.3	pg of Hg	122%	77-123
1200724-CCB8		6.61	pg of Hg		
1200724-CCV6	500.0	603.8	pg of Hg	121%	77-123
1200724-CCB9		4.54	pg of Hg		
1200724-CCV7	500.0	581.0	pg of Hg	116%	77-123
1200724-CCBA		4.28	pg of Hg		
1200724-CCV8	500.0	564.1	pg of Hg	113%	77-123
1200724-CCBB		3.89	pg of Hg		
1200724-CCV9	500.0	581.3	pg of Hg	116%	77-123
1200724-CCBC		6.47	pg of Hg		

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Instrument Calibration

Sequence: 1200736
Instrument: THG-05
Date: 09/24/2012
Analyte: Hg

Total Mercury and Mercury Speciation by CVAFS
Method: EPA 1631

Lab ID	True Value	Result	Units	REC & Limits	
1200736-IBL1		1.30	pg of Hg		
1200736-IBL2		1.05	pg of Hg		
1200736-IBL3		2.65	pg of Hg		
1200736-IBL4		2.88	pg of Hg		
1200736-CAL1	10.00	10.53	pg of Hg	105%	
1200736-CAL2	25.00	24.49	pg of Hg	98%	
1200736-CAL3	100.0	96.17	pg of Hg	96%	
1200736-CAL4	500.0	493.0	pg of Hg	99%	
1200736-CAL5	2500	2617	pg of Hg	105%	
1200736-CAL6	10000	9804	pg of Hg	98%	
1200736-ICV1	1568	1545	pg of Hg	99%	85-115
1200736-CCB1		10.4	pg of Hg		
1200736-CCV1	500.0	505.3	pg of Hg	101%	77-123
1200736-CCB2		5.42	pg of Hg		
1200736-CCB3		4.57	pg of Hg		
1200736-CCB4		5.91	pg of Hg		
1200736-CCV2	500.0	501.5	pg of Hg	100%	77-123
1200736-CCB5		5.23	pg of Hg		
1200736-CCV3	500.0	499.5	pg of Hg	100%	77-123
1200736-CCB6		4.64	pg of Hg		
1200736-CCV4	500.0	504.1	pg of Hg	101%	77-123
1200736-CCB7		4.52	pg of Hg		
1200736-CCV5	500.0	476.3	pg of Hg	95%	77-123
1200736-CCB8		4.57	pg of Hg		
1200736-CCV6	500.0	471.7	pg of Hg	94%	77-123
1200736-CCB9		4.42	pg of Hg		
1200736-CCV7	500.0	477.2	pg of Hg	95%	77-123
1200736-CCBA		4.55	pg of Hg		
1200736-CCV8	500.0	488.6	pg of Hg	98%	77-123
1200736-CCBB		6.71	pg of Hg		
1200736-CCV9	500.0	488.4	pg of Hg	98%	77-123
1200736-CCBC		7.59	pg of Hg		
1200736-CCVA	500.0	500.5	pg of Hg	100%	77-123
1200736-CCBD		6.49	pg of Hg		
1200736-CCVB	500.0	493.7	pg of Hg	99%	77-123
1200736-CCBE		9.03	pg of Hg		
1200736-CCVC	500.0	485.7	pg of Hg	97%	77-123
1200736-CCBF		6.18	pg of Hg		
1200736-CCVD	500.0	484.7	pg of Hg	97%	77-123
1200736-CCBG		4.09	pg of Hg		

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Instrument Calibration

Sequence: 1200740
Instrument: THG-05
Date: 09/25/2012
Analyte: Hg

Total Mercury and Mercury Speciation by CVAFS
Method: EPA 1631

Lab ID	True Value	Result	Units	REC & Limits	
1200740-IBL1		1.40	pg of Hg		
1200740-IBL2		1.85	pg of Hg		
1200740-IBL3		2.50	pg of Hg		
1200740-IBL4		4.25	pg of Hg		
1200740-CAL1	10.00	10.11	pg of Hg	101%	
1200740-CAL2	25.00	23.88	pg of Hg	96%	
1200740-CAL3	100.0	99.90	pg of Hg	100%	
1200740-CAL4	500.0	501.1	pg of Hg	100%	
1200740-CAL5	2500	2574	pg of Hg	103%	
1200740-CAL6	10000	10060	pg of Hg	101%	
1200740-ICV1	1568	1553	pg of Hg	99%	85-115
1200740-CCB1		8.83	pg of Hg		
1200740-CCV1	500.0	508.8	pg of Hg	102%	77-123
1200740-CCB2		7.14	pg of Hg		
1200740-CCB3		4.51	pg of Hg		
1200740-CCB4		4.97	pg of Hg		
1200740-CCV2	500.0	499.8	pg of Hg	100%	77-123
1200740-CCB5		4.84	pg of Hg		
1200740-CCV3	500.0	479.7	pg of Hg	96%	77-123
1200740-CCB6		5.48	pg of Hg		
1200740-CCV4	500.0	473.9	pg of Hg	95%	77-123
1200740-CCB7		3.66	pg of Hg		
1200740-CCV5	500.0	486.7	pg of Hg	97%	77-123
1200740-CCB8		3.81	pg of Hg		
1200740-CCV6	500.0	439.8	pg of Hg	88%	77-123
1200740-CCB9		3.87	pg of Hg		
1200740-CCV7	500.0	451.7	pg of Hg	90%	77-123
1200740-CCBA		3.43	pg of Hg		
1200740-CCV8	500.0	497.9	pg of Hg	100%	77-123
1200740-CCBB		11.2	pg of Hg		
1200740-CCV9	500.0	494.2	pg of Hg	99%	77-123
1200740-CCBC		7.75	pg of Hg		
1200740-CCVA	500.0	496.0	pg of Hg	99%	77-123
1200740-CCBD		7.09	pg of Hg		
1200740-CCVB	500.0	492.0	pg of Hg	98%	77-123
1200740-CCBE		6.35	pg of Hg		

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Containers

Lab ID: 1237037-01
Sample: BioReactor 1 Inf
Report Matrix: Influent
Sample Type: Sample
Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71666330 10	none	n/a		Cooler

Lab ID: 1237037-02
Sample: BioReactor 1 Inf
Comments: Qualify H
Report Matrix: Influent
Sample Type: Sample
Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	none	n/a		Cooler

Comments: Split from THg Container

Lab ID: 1237037-03
Sample: BioReactor 1 Inf Hg Blk
Report Matrix: DIW
Sample Type: Field Blank
Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71666330 10	none	n/a		Cooler

Lab ID: 1237037-04
Sample: BioReactor 1 Inf Hg Blk
Comments: Qualify H
Report Matrix: DIW
Sample Type: Field Blank
Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	none	n/a		Cooler

Comments: Split from THg Container

Lab ID: 1237037-05
Sample: BioReactor 2 Inf
Report Matrix: Influent
Sample Type: Sample
Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71666330 10	none	n/a		Cooler

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Containers

Lab ID: 1237037-06
Sample: BioReactor 2 Inf
Comments: Qualify H

Report Matrix: Influent
Sample Type: Sample

Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	none	n/a		Cooler

Comments: Split from THg Container

Lab ID: 1237037-07
Sample: BioReactor 2 Inf Hg Blk

Report Matrix: DIW
Sample Type: Field Blank

Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71666330 10	none	n/a		Cooler

Lab ID: 1237037-08
Sample: BioReactor 2 Inf Hg Blk
Comments: Qualify H

Report Matrix: DIW
Sample Type: Field Blank

Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	none	n/a		Cooler

Comments: Split from THg Container

Lab ID: 1237037-09
Sample: BioReactor 2 Eff

Report Matrix: Effluent
Sample Type: Sample

Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71666330 10	none	n/a		Cooler

Lab ID: 1237037-10
Sample: BioReactor 2 Eff
Comments: Qualify H

Report Matrix: Effluent
Sample Type: Sample

Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	none	n/a		Cooler

Comments: Split from THg Container

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Containers

Lab ID: 1237037-11
Sample: BioReactor 2 Eff Hg Blk
Report Matrix: DIW
Sample Type: Field Blank
Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71666330 10	none	n/a		Cooler

Lab ID: 1237037-12
Sample: BioReactor 2 Eff Hg Blk
Comments: Qualify H
Report Matrix: DIW
Sample Type: Field Blank
Collected: 09/11/2012
Received: 09/14/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250 mL	71659890 20	none	n/a		Cooler

Comments: Split from THg Container

Shipping Containers

Cooler

Received: September 14, 2012 9:00
Tracking No: 5353 0519 4152 via FedEx
Coolant Type: Ice
Temperature: 0.2 °C

Description: Cooler
Damaged in transit? No
Returned to client? No

Custody seals present? No
Custody seals intact? No
COC present? Yes

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

LIMS # J1209176 | Matrix: OTHER | Samples Originating From: NC___ SC___

Logged By: cpb | Date & Time: 9-12-12 0728 | SAMPLE PROGRAM: Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA ___ Waste ___

Vendor: | Cooler Temp (C): 2.4

Vendor: Prism, ASC, Brooks

[19]Page 1 of 2
DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

[1]Project Name: Allen Shay/MillerCreek		[2]Phone No:	
[2] Client: Ron Laws, Robbin Jolly, Bill Kennedy, Don Scruggs		[4]Fax No:	
[5]Project: MASFFLX	[6]Account:	Mail Code:	
[8]Oper. Unit: AS00	[9]Process: BEXHABS	[10]Activity ID:	

[15]Preserv..1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None

MR #

Customer to complete all appropriate non-shaded areas.

[16]Analyses Required

LAB USE ONLY [11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[17]Comp.	[18]Grab	TDS, TSS	Hg 1631 total and filtered V_Brand	Metals + Hg 245.1**	Mn (ICP), Se (IMS) filtered	Se, Speciation, V_ASC	Carbonate alkalinity, bicarbonate alkalinity, alkalinity, total (4.5), pH - V_Prism	Chloride, Sulfate, Bromide, - Dionex	Nitrate-nitrite, C_NO3/NO2
						4			4	3	3	4	4	4	2,4
J1201472		FGD Purge Eff	9-11-12	3:30PM	Chris Greene	90		1		1**	1	1	1	1	
23		* EQ Tank	9-11	0819	Bill Haskins	5				1**	1				
24		BioReactor 1 Inf	9-11	0825	Bill Haskins	8			1	1	1	1	1		
25		BioReactor 1 Inf Hg Blk	9-11	0840	Bill Haskins	2			1						
26		BioReactor 2 Inf	9-11	0827	Bill Haskins	8			1	1	1	1	1		
27		BioReactor 2 Inf Hg Blk	9-11	0848	Bill Haskins	2			1						
28		BioReactor 2 Eff	9-11	0823	Bill Haskins	9			1	1	1	1	1	1	
29		BioReactor 2 Eff Hg Blk	9-11	0844	Bill Haskins	2			1						
30		Filter Blank	9-11	1040	Bill Haskins	2									
								1	6	5	6	4	4	2	

1) Relinquished By	Date/Time	2) Accepted By: cpb	Date/Time: 9-12-12
3) Relinquished By	Date/Time	4) Accepted By	Date/Time
5)Relinquished By	Date/Time	6)Accepted By:	Date/Time
7)Relinquished By: cpb	Date/Time: 9-13-12	8)Accepted By:	Date/Time
9)Seal/Locked By	Date/Time: 9-13-12	10) Seal/Lock Opened By:	Date/Time: 9/14/12 0900
11)Seal/Locked By	Date/Time	12)Seal/Lock Opened By	Date/Time

Comments:

* Metals= [illegible] TRM/ICP [illegible] Fe, K, [illegible] Mn, [illegible] [illegible] 2 samples

[22]Requested Turnaround

21 Days ____X____

*7 Days _____

*48 Hr _____

*Other 9-20-12

Add. Cost Will Apply

PRISM LABORATORIES, INC.
Full-Service Analytical & Environmental Solutions

NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert No. 37735
VA Certification No. 1287

Case Narrative

09/19/2012

Duke Energy Corporation (04)
Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project: Allen Shay/Miller Creek
Project No.: J12090176
Lab Submittal Date: 09/12/2012
Prism Work Order: 2090231

This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Please call if you have any questions relating to this analytical report.

Respectfully,

PRISM LABORATORIES, INC.

VP Laboratory Services

Peggy J Kendall

Reviewed By

Data Qualifiers Key Reference:

HT	Sample received and analyzed outside of the hold time.
BRL	Below Reporting Limit
MDL	Method Detection Limit
RPD	Relative Percent Difference
*	Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

Sample Receipt Summary

09/19/2012

Prism Work Order: 2090231

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
2012019722/FGD Purge Eff	2090231-01	Water	09/11/12	09/12/12
2012019724/BioReactor 1 Inf	2090231-02	Water	09/11/12	09/12/12
2012019726/BioReactor 2 Inf	2090231-03	Water	09/11/12	09/12/12
2012019728/BioReactor 2 Eff	2090231-04	Water	09/11/12	09/12/12

Samples received in good condition at 2.4 degrees C unless otherwise noted.

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

Duke Energy Corporation (04)
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project: Allen Shay/Miller Creek

Project No.: J12090176
Sample Matrix: Water

Client Sample ID: 2012019722/FGD Purge Eff
Prism Sample ID: 2090231-01
Prism Work Order: 2090231
Time Collected: 09/11/12 03:30
Time Submitted: 09/12/12 15:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
pH	**6.9 HT**	**pH Units**			**1**	***SM4500-H B**	**9/14/12 13:30**	**JAB**	**P2I0244**
Total Alkalinity	**31**	**mg/L**	**5.0**	**0.66**	**1**	***SM2320 B**	**9/14/12 13:30**	**JAB**	**P2I0245**
Carbonate Alkalinity	BRL	mg/L	5.0	0.66	1	*SM2320 B	9/14/12 13:30	JAB	P2I0246
Bicarbonate Alkalinity	**31**	**mg/L**	**5.0**	**0.66**	**1**	***SM2320 B**	**9/14/12 13:30**	**JAB**	**P2I0247**

Duke Energy Corporation (04)
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project: Allen Shay/Miller Creek

Project No.: J12090176
Sample Matrix: Water

Client Sample ID: 2012019724/BioReactor 1 Inf
Prism Sample ID: 2090231-02
Prism Work Order: 2090231
Time Collected: 09/11/12 08:15
Time Submitted: 09/12/12 15:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
pH	**6.9 HT**	**pH Units**			**1**	***SM4500-H B**	**9/14/12 13:30**	**JAB**	**P2I0244**
Total Alkalinity	**28**	**mg/L**	**5.0**	**0.66**	**1**	***SM2320 B**	**9/14/12 13:30**	**JAB**	**P2I0245**
Carbonate Alkalinity	BRL	mg/L	5.0	0.66	1	*SM2320 B	9/14/12 13:30	JAB	P2I0246
Bicarbonate Alkalinity	**28**	**mg/L**	**5.0**	**0.66**	**1**	***SM2320 B**	**9/14/12 13:30**	**JAB**	**P2I0247**

Duke Energy Corporation (04)
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project: Allen Shay/Miller Creek

Project No.: J12090176
Sample Matrix: Water

Client Sample ID: 2012019726/BioReactor 2 Inf
Prism Sample ID: 2090231-03
Prism Work Order: 2090231
Time Collected: 09/11/12 08:27
Time Submitted: 09/12/12 15:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
pH	**6.7 HT**	**pH Units**			**1**	***SM4500-H B**	**9/14/12 13:30**	**JAB**	**P2I0244**
Total Alkalinity	**210**	**mg/L**	**5.0**	**0.66**	**1**	***SM2320 B**	**9/14/12 13:30**	**JAB**	**P2I0245**
Carbonate Alkalinity	BRL	mg/L	5.0	0.66	1	*SM2320 B	9/14/12 13:30	JAB	P2I0246
Bicarbonate Alkalinity	**210**	**mg/L**	**5.0**	**0.66**	**1**	***SM2320 B**	**9/14/12 13:30**	**JAB**	**P2I0247**

Duke Energy Corporation (04)
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project: Allen Shay/Miller Creek

Project No.: J12090176
Sample Matrix: Water

Client Sample ID: 2012019728/BioReactor 2 Eff
Prism Sample ID: 2090231-04
Prism Work Order: 2090231
Time Collected: 09/11/12 08:23
Time Submitted: 09/12/12 15:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
pH	**6.9 HT**	**pH Units**			**1**	***SM4500-H B**	**9/14/12 13:30**	**JAB**	**P2I0244**
Total Alkalinity	**130**	**mg/L**	**5.0**	**0.66**	**1**	***SM2320 B**	**9/14/12 13:30**	**JAB**	**P2I0245**
Carbonate Alkalinity	BRL	mg/L	5.0	0.66	1	*SM2320 B	9/14/12 13:30	JAB	P2I0246
Bicarbonate Alkalinity	**130**	**mg/L**	**5.0**	**0.66**	**1**	***SM2320 B**	**9/14/12 13:30**	**JAB**	**P2I0247**

Duke Energy Corporation (04)
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project: Allen Shay/Miller Creek

Project No: J12090176

Prism Work Order: 2090231
Time Submitted: 9/12/2012 3:00:00PM

General Chemistry Parameters - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P2I0244 - NO PREP										
LCS (P2I0244-BS1)				Prepared & Analyzed: 09/14/12						
pH	6.82		pH Units	6.860		99	99-101			
Batch P2I0245 - NO PREP										
Blank (P2I0245-BLK1)				Prepared & Analyzed: 09/14/12						
Total Alkalinity	BRL	5.0	mg/L							
LCS (P2I0245-BS1)				Prepared & Analyzed: 09/14/12						
Total Alkalinity	243	5.0	mg/L	250.0		97	90-110			
LCS Dup (P2I0245-BSD1)				Prepared & Analyzed: 09/14/12						
Total Alkalinity	248	5.0	mg/L	250.0		99	90-110	2	200	
Batch P2I0246 - NO PREP										
Blank (P2I0246-BLK1)				Prepared & Analyzed: 09/14/12						
Carbonate Alkalinity	BRL	5.0	mg/L							
LCS (P2I0246-BS1)				Prepared & Analyzed: 09/14/12						
Carbonate Alkalinity	243	5.0	mg/L				90-110			
LCS Dup (P2I0246-BSD1)				Prepared & Analyzed: 09/14/12						
Carbonate Alkalinity	248	5.0	mg/L				90-110	2	200	
Batch P2I0247 - NO PREP										
Blank (P2I0247-BLK1)				Prepared & Analyzed: 09/14/12						
Bicarbonate Alkalinity	BRL	5.0	mg/L							

Duke Energy Corporation (04)
Attn: Jay Perkins
13339 Hagers Ferry Road
Huntersville, NC 28078

Project: Allen Shay/Miller Creek

Project No: J12090176

Prism Work Order: 2090231
Time Submitted: 9/12/2012 3:00:00PM

General Chemistry Parameters - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P2I0247 - NO PREP										
LCS (P2I0247-BS1)				Prepared & Analyzed: 09/14/12						
Bicarbonate Alkalinity	243	5.0	mg/L	250.0		97	90-110			
LCS Dup (P2I0247-BSD1)				Prepared & Analyzed: 09/14/12						
Bicarbonate Alkalinity	248	5.0	mg/L	250.0		99	90-110	2	200	

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

LIMS #: J12090176 | Matrix: OTHER | Samples Originating From: NC___ SC___
Logged By: cpk | Date & Time: 9-12-12 0728 | SAMPLE PROGRAM: Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA ___ Waste ___
Vendor: | Cooler Temp (C): 2.4
Vendor: Prism, ASC, Brooks | [15]Preserv.: 1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None
MR #:

[19]Page 1 of 2
DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

1)Project Name: Allen Shay/MillerCreek		2)Phone No:	
2) Client: Ron Laws, Robbin Jolly, Bill Kennedy, Don Scruggs		4)Fax No:	
5)Project: MASFFLX	6)Account:	Mail Code:	
8)Oper. Unit: AS00	9)Process: BEXHABS	10)Activity ID:	

Customer to complete all appropriate non-shaded areas.

[16]Analyses Required

LAB USE ONLY [11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[17]Comp.	[18]Grab	TDS, TSS (4)	Hg 1631 total and filtered V_Brand (4)	Metals + Hg 245.1** (3)	Mn (ICP), Se (IMS) filtered (3)	Se, Speciation, V_ASC (4)	Carbonate alkalinity, bicarbonate alkalinity, alkalinity, total (4.5), pH - V_Prism (4)	Chloride, Sulfate, Bromide, - Dionex (4)	Nitrate-nitrite, C_NO3/NO2 (2,4)	
2012014722		FGD Purge Eff	9-11-12	3:30AM	Chris Greene	90		1		1**	1	1	1	1		Ø1
23		* EQ Tank	9-11	0819	Bill Haskins	5				1**	1					
24		BioReactor 1 Inf	9-11	0815	Bill Haskins	8			1	1	1	1	1			Ø2
25		BioReactor 1 Inf Hg Blk	9-11	0840	Bill Haskins	2			1							
26		BioReactor 2 Inf	9-11	0827	Bill Haskins	8			1	1	1	1	1			Ø3
27		BioReactor 2 Inf Hg Blk	9-11	0848	Bill Haskins	2			1							
28		BioReactor 2 Eff	9-11	0823	Bill Haskins	9			1	1	1	1	1	1		Ø4
29		BioReactor 2 Eff Hg Blk	9-11	0844	Bill Haskins	2			1							
30		Filter Blank	9-11	1040	Bill Haskins	2										
								1	6	5	6	4	4	2		

Relinquished By	Date/Time	Accepted By	Date/Time
1) Relinquished By		2) Accepted By: cpk	9-12-12
3) Relinquished By: Cindy Knox	9-12-12 1415	4) Accepted By: [signature]	9/12/12 1415
5) Relinquished By: [signature]	9/12/12 1500	6) Accepted By: [signature]	9.12.12 1500
7) Relinquished By: cpk	9-13-12	8) Accepted By:	
9) Seal/Locked By	9-13-12	10) Seal/Lock Opened By	
11) Seal/Locked By		12) Seal/Lock Opened By	

Comments: * Metals=

[22]Requested Turnaround
21 Days ___X___
*7 Days ______
*48 Hr ______
*Other 9-20-12
Add. Cost Will Apply

2.4

2090231

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Analytical Laboratory Use Only

LIMS # J1209176 | Matrix: OTHER | Samples Originating From: NC___ SC___
Logged By: cpk | Date & Time: 9-12-12 0728 | SAMPLE PROGRAM: ___ Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA ___ Waste ___
Vendor: | 2.4 Cooler Temp (C)
Vendor: Prism, ASC, Brooks | [15]Preserv.: 1=HCl 2=H_2SO_4 3=HNO_3 4=Ice 5=None

Customer must Complete

1) Project Name: Allen Shay/MillerCreek | 2) Phone No:
2) Client: Ron Laws, Robbin Jolly, Bill Kennedy, Don Scruggs | 4) Fax No:
5) Project: MASFFLX | 6) Account: | Mail Code:
8) Oper. Unit: AS00 | 9) Process: BEXHABS | 10) Activity ID:
MR #

Customer to complete all appropriate non-shaded areas.

Customer to complete appropriate columns to right

LAB USE ONLY [11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[16]Analyses Required: [17]Comp.	[18]Grab	TDS, TSS	Hg 1631 total and filtered V_Brand	Metals + Hg 245.1**	Mn (ICP), Se (IMS) filtered	Se, Speciation, V_ASC	Carbonate alkalinity, bicarbonate alkalinity, alkalinity, total (4.5), pH - V_Prism	Chloride, Sulfate, Bromide, - Dionex	Nitrate-nitrite, C_NO3/NO2
								4	4	3	3	4	4	4	2,4
20120147 22		FGD Purge Eff	9-11-12	3:30 PM	Chris Greene	90		1		1**	1	1	1	1	
23	*	EQ Tank	9-11	0819	Bill Haskins	5				1**	1				
24		BioReactor 1 Inf	9-11	0815	Bill Haskins	8			1	1	1	1	1		
25		BioReactor 1 Inf Hg Blk	9-11	0840	Bill Haskins	2			1						
26		BioReactor 2 Inf	9-11	0827	Bill Haskins	8			1	1	1	1	1		
27		BioReactor 2 Inf Hg Blk	9-11	0848	Bill Haskins	2			1						
28		BioReactor 2 Eff	9-11	0823	Bill Haskins	9			1	1	1	1	1	1	
29		BioReactor 2 Eff Hg Blk	9-11	0844	Bill Haskins	2			1						
30		Filter Blank	9-11	1040	Bill Haskins	2					1				
											Filter Mn and Se in field				
								1	6	5	6	4	4	2	

Customer to sign & date below - fill out from left to right.

1) Relinquished By	Date/Time	2) Accepted By: cpk	Date/Time 9-12-12
PM 3) Relinquished By: Cindy Knox	Date/Time 9-12-12 1415	4) Accepted By:	Date/Time 9/12/12 1415
5) Relinquished By	Date/Time	6) Accepted By:	Date/Time
AB 7) Relinquished By: cpk	Date/Time 9-13-12	8) Accepted By:	Date/Time
.11 9) Seal/Locked By	Date/Time 9-13-12	10) Seal/Lock Opened By	Date/Time
11) Seal/Locked By	Date/Time	12) Seal/Lock Opened By	Date/Time

Comments

* Metals=TRM/IMS = As, Cd, Cr, Cu, Ni, Se, Ag, Zn (8) TRM/ICP = B, Ca, Fe, K, Li, Mg, Mn, Na, (8) ** Hg 245.1 on these 2 samples

Customer, IMPORTANT! Please indicate desired turnaround.

[22]Requested Turnaround

21 Days ___X___
*7 Days ___
*48 Hr ___
*Other 9-20-12
Add. Cost Will Apply